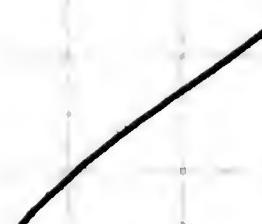


Snow Mountains

March 27 - April 3

1966.



D

March 27

B+W - 5-9 *Saccostromilla* boulders in
cgl. on Lava of Hills

Color - 0-5 *Saccostromilla* Boulders

The west side of the bioluminescence
overlies the cgl. and along the face
of the cliff a solid layer of rock
indicates a tongue of reef meet
or reef debris has been lying over the
cgl. Where cgl + reef meet on its
west side a knoll on a broad
reef with many sponges gradually
overlies the cgl. The cgl. may seem
to be derived from the bioluminescence
or once like them.

B-W - 13+14 Sponge reef over cgl

Color - 5-6 " " " "

B-W - 19 *Geyerella* + *microceramus* top from East

Color - 9-12 *Geyerella* + *microceramus* top from
East

736 D - fossil lines taken from about
5-10' from the base of bioluminescence at east
end about 15'-20' from fault.
Fossils in lower 20' - *Hastellia*,
Rhip. hastellina, many bryozoans,
Glyptoceraspis. Concentration of big
crinoid stems about 60' from
east end. Possible algae with
the crinoid stems. *Leptostomia*
small corals

Q

The reef seems to rest on West side
of large reef seems to overhang it.
The cal may be a reef core. Part
of the western boulders looks like
a sand bank. It is rounded blue
and the overlying darker gray blocks
rests upon it. Not many fossils
seen Large Eustebes.

Top of boulders has a siliceous
skin one inch or less thick.
Geographically 10' below top of main
reef mass. It is made of reef
probably a sand bank

The fault on the west side has a
throw of about 20-25' and brings
the top of the Sullivan Peak in
just at piston with the top of the reef.

736c - Fusulines from east end
falling block, 1' below top of massive
Sullivan Peak. W side of this block is
mainly cal. but east side seems to
be bioclastic, very solid, with bryozoa
Saxatilella.

Saw a *Spiriferidophora* in one of
the boulders west of the main reef
mass.

Except where Thielinae cementing
strata, most of the reef is a
fine sandstone or coarse siltstone.

3

The coarse grain structures are usually
in very fine-grained almost smooth
rocks. Shells, however, are abundant.
The reef top of reef hummocks
Fossiliferous boulders are all Permian
so far as I could see. I doubt if the
blocks with *Saccostromella* could come
from anywhere but the Lubbock Peak.
Presumably the Ogallala Tumble completely
covered the Decatur Ranch which could
not have supplied the debris.

Hill East of 4801

About 50 yds east of mine + 50' above
Sullivan Peak bedrock with *Iguanodonta*
Edriodus, *Vagus*, about 4' thick, 3 or 6' depth.
About 50 yards east of mine and
on slopes of a lateral one, top of
Sullivan Peak has a sandy debris
and is overlain by about 20' of fine
crumbly shale. Top of SP with
bedrock beds in rocky beds
small reefy mass of *Acribia*, *Rhip*
icosensis. These lie up 10'. Rest
of SP mostly dark calcareous, blocky
deems more massive than the beds
above the big reef. Some thin bedded
platy beds. Small patches like small
reefs.

(P)

Small gully, east of main gully
opposite fault block,
massive cleavant ledge bioclastic conglomerate
Bumpy, thick-bedded (6") like overreef framework
Ribbon bedded silica plates in thin bedded ls.
mostly covered
Massive cgl + bioclastic ls below

Main road
SP

Beds above SP cgl here are about
50' thick.

736d - abundant ammonites about
10-15' below top also at head
of easternmost gully but in
unfaulted block.

Walked top of SP to where hill
flattens just west of a high
peak opposite a deep gully. Here
Upper SP is a sand bank with
bioclasts in it. SP is a great
detrital mass in which bioclasts
existed. Gl probably intraformational
& off bioclasts. Flattened hill is
set off from crest by a gully
Coscinophora in very top!

Bioclastic patch of large *Gryphaea*
about 100 ft. east of high crest
Also big *Desheria*

BW - 20, 21 pink sheet in middle SP
Color - 18 & 19 " " " "

(5)

West from crest The lower S.P. is massive calcarenite with chert pebbles. These are angular and brown, an occasional or many also ragged suggesting a boulder of Lemo Hill's cyl. and remnants of Dacie Rancher member.
B-W 25-26 Contact PT + SP

Color 23-24 " " "

Saw thick bed of pinkish chert in about middle of Sullivan Peak I think cyl and boulders carbon contemporaneous. Saw no Belemnites in the SP where we studied it but they should be there. Actually they are rare in the SP which makes the boulder of Belemnites hard to explain. Nevertheless the fossil boulders all seemed good Permian types. The Spiriferid flora would be an unlikely derivative from any beds besides the S.P.

Belemnites could usually be found in the S.P. at the east end of the Lemo Hill. I suspect that the boulders in the cyl. are from many bioherms.

6

March 28

B-W - 27 - Hill with no & Rd Canyon
Color - 28 - " " " "Top of hill N 75° W of hill west about 5' ETop of hill

736e

I 15

mostly platy shale capped with 2' ledges
of limestone containing fusulines

H 9'

736f
massive ledge in two thick layers of
ls. with small brown pebbles.

G 11'

capped but with yellow siliceous shale chips
massive ledge of fusuline ls.

F 736g 6'

gray shale under a rubble slope

736g
massive ledge of fusuline ls.
gray shale under a rubble slope

E 26'

lens of dark brown ls. with possible small pebbles
light gray ls.

D 3'

brown in coarse ss in few layers each

C 5'

3'-4" thick with lighter ss between

B

This is the ammonite level.

A 12'

From H to top of hill 7 steps with
comparisons at 20°.Mostly
sandstone
breaking
in irregular
lumps
98' vertical
from top of
hill to
ss A.

C - lens Reg. fusulines

I above the 2' ledge are at least
5 feet ss of shale and a gray
ls. lens caps the hill N $62^{\circ} / 20^{\circ}$ NW
measured on 2' bed. 2' ledge =
736e

D

H = 736 f - Top of massive ledge 15' below top of hill

F = 736 g fossiliferous

Section here not like the hill 486 f because what seems to be Leonard cyl level is a coarse brownish sandstone without ammonites but saw fragments of the Leonard where the contact is it have no idea saw no diagnostic fossil Coquille Rings

736 f - Ammonites in conglomerate on bank on south side draw. This location is similar to the beds at hill 486 f but the ammonites are more concentrated at this locality. The ammonites are almost wholly Parites but an occasional mantidoid was seen. Spiriferids are fairly common. The Rugatia from the hill on the west belongs at this level.

Apr 28

736 i - Rugatia from lens (= bed C) just above the thick sandstone.

8

March 29
736-1

Beds on top of Road Canyon
are mostly platy sandstone.

at 150-200 feet come smooth ls
lenses, weathered light gray - no fossils
at 227 pieces all covered, 143 pieces
more to base of the hill.

Lower part of the hill is irregular
platy ls.

Color 33 + 34 - broken in base of
Road Canyon - hill with loose fossils
Color 35 + 36 - High Peak showing dark
+ carbon.

Black + White - Biolum + Wood as above
but 3 or 4.

Top of the bed circular stems
Neospirella, Meekella, Thamnopora

Section above big ls.
N 3° W 90° W measured on
yellow gray irregular ls.
Compass set at 90°
Hill 4806

9

Section above sandstone
Northwest side Dogwood Mtn.
Hill 4806

Eoggia
Neotheca
Rudistidea

all Cretaceous

Covered above this to baffle we
worked in yesterday

To bottom of low hill capped with
this rock.

736 K

b step
J

I
3' 4 steps

H 3'

G 3 steps

F 1 step

E 4 steps

D 1 step

C 1 step

B 4 steps - 1'

A 5'

SS

covered probably dolomite

dolomitic ledge fine grained gray

covered + about 2'

736 j gray brittle carbonated fractures with ammonites
mostly covered yellow sandy clipes in sand

platy sandy rock capped by lens of yellow ls

+ 3' same capped by yellow ls - no fossils

= mostly platy yellow rock capped by yellow ls.

covered

12

Also Bobt

$$735 + 375 = 760 \text{ N}$$

736-2 remain as collecting place
of 1965 and 1963 in upper part of
Ten Thousand Rod Campaign. Several
collections found which were in
the regular tree stumps with the very
abundant fruticosa. Several
prior collections for collections.

736 m - Pindula Thawalabwa
from top of Thicke rounded tree
March 29th.

Clear - Ruff + - / - 4 cactuses & Cathedral mtn

Maule 30

Color 5-14 Views of Deccan Basalt

Visited area of proposed Neal Ranch
with Bigelow and, according to B. Dan
Jewett's suggestion. The interpretation
of Rose, we agreed on reading the
stuff that it seemed to be
affine probably in accordance with
the Laramie Hills. Actually the stuff
seemed to agree with some of the
bedrooms. I suggested that it go
among the biological beds at the
base of the Laramie Hills. The
brachiofora certainly are not
strongly buried. Indeed throughout
the crest of the plateau will be
detinued by the transgression and

(11)

March 31

Bill Shuey

at basal Lemox Hill - Neal Ranch?

Catto - Dage - Parsons Cattle Co

736 n - West end flattest part of ravine 30' of slope with numerous boulders under cyl. Saw *Holopea engelhardti*, *Parenaleptes umbellata*. Saw no boulders in cyl. What appears to be cyl in place appears under the boulders. Probably at least 30' or 60' of boulders here. Saw no angularity such as described by Rose. Actually all saw were bedded rock that would give a strike and dip.

At 707½ a veneer of fine calcomite occurs over the mudcalite or possibly in it, but I could find no fossils in it.

At 736 n saw several float blocks of *Conularia* but could not tell where they came from but it is most likely from the Deere Ranch member which caps the hill.

(12)

April 1

Went to Hens Ranch with
Oil young, D. Hens R. Horst to
look around, I went to
northe side and found
belemnite bivalves resting
on subhorizontal of Lenoir Hills fm.
These occurred in south side
of small gully at base of
North needle like cliff 720 ft.

We went thru the pass which
has the white capped bank. The
limestone capping the bank extends
down to and under the bitumen
referred to above. This is a good
measure of slope going from 5300
to about 5050' about 150' in
 $1500 = 1 \text{ foot in } 6 = 500 \text{ per mile}$
about 10° but this is only a
component of the true dip. No
concrete evidence of the Skinner
ranch passing into Hens
lithology was seen.

In afternoon went to hill
4861 but saw no new features.
A fault clearly runs along the
east face of this hill.

(13)

April 1

Color 5-1-9 Decie Ranch
along Yester Ranch road, 9 in
view of large hill with ledges
overlying

Sullivan Peak

BW2 - Id. 27 same as above

Sect from Sullivan Peak

N21°E 12°W Measured on beds about 30' above
massive bichuan

A - Massive, many corals. Bedrock
does not have tabular, yellow
rocks underneath, which makes
contact with Red Canyon bichuan
ls. which is draped over the top.
Bichuan estimated at 15', possibly
20' thick

BW2 - 27 Bichuan at base of R.C.

28 Contact w/ RC

Slope dip measurements from top of bichuan
at 91° Top of hill is at 55° slope and
90° dip. This seems to be very
top of limestone as the top is covered
with yellow fragments

Top of hill at 6320 and come up 297' of
slope puts bichuan top at 5045' and
base at about 5025 contour.

Upper massive bed forms a
dip slope to saddle

E 20' of slope above point where
upper bichuan dips under saddle

2 layers over

Janus 10'

535
5043

563

$$9 - \underline{28} = 9 - 26$$

$$12 - \underline{12} = 11$$

$$57 - \underline{33} = 64$$

$$106 - \underline{55} = 100$$

28

33

3144

~~32~~
275°

297

420

357

3476

387

2322

382

39 619 2

97
86

13

4
3
2
1
9
16
24
198
179

140) 367

26

387

13
15

(14)

7360 - 30' of slope below top of hill =
about 35' stratigraphically =
35' below top of D.

7310 - Fossil bed

1
Dip
1

20' of slope
Eg slope of
dip at 12°

12° 7360

D 20' of slope

D 20' of slope

5'

C 20' of slope

B 5' of slope

B 3'

B 8 ft

A 15'-20' Massive bioclasts

Flimmen bedded ls with some yellow
yellow rock forms small nice stone saddle

Top at 5' of slope and 97° of dip

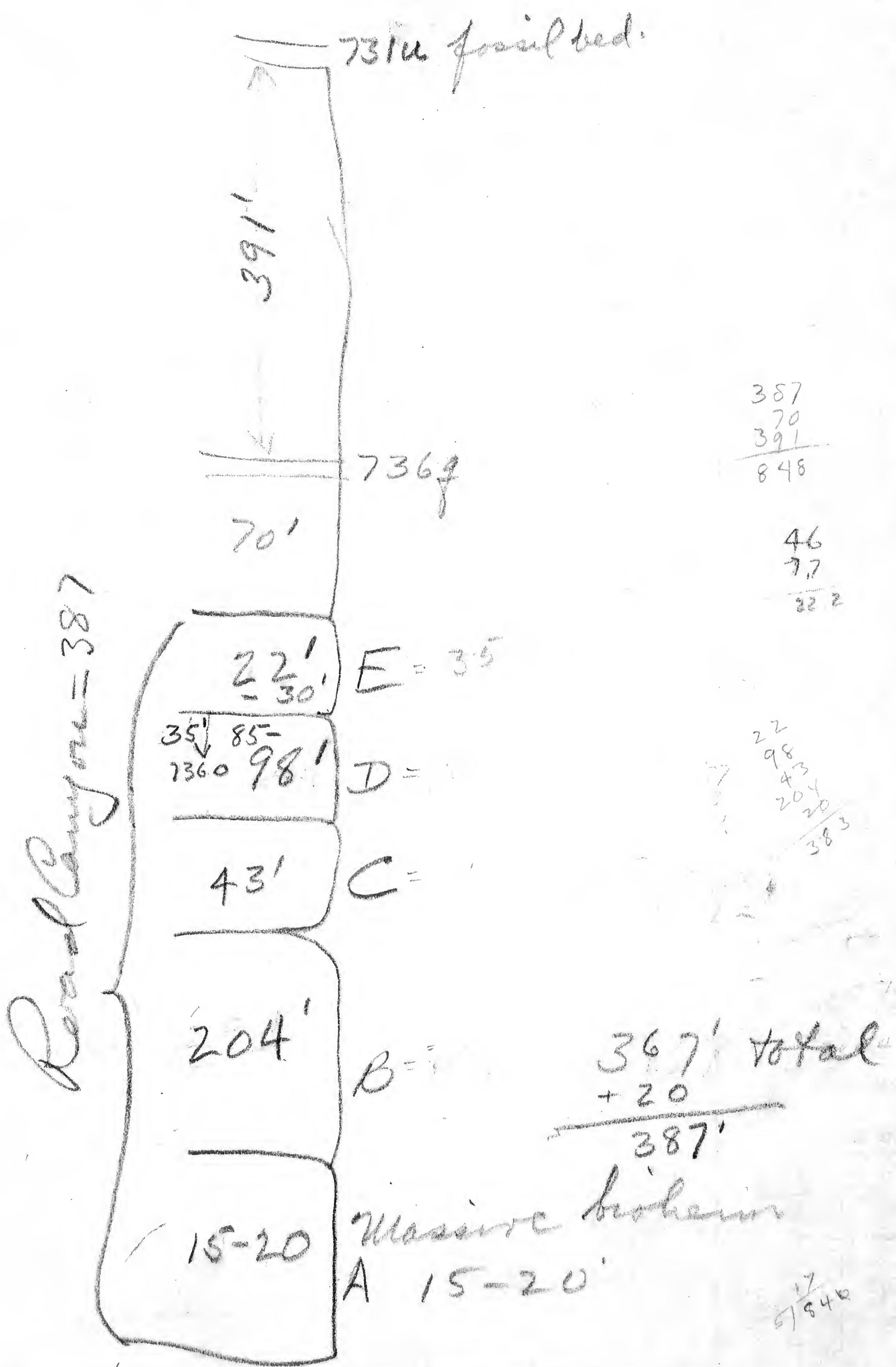
At 83° of dip many lenses - sample at 84°

Rock carbonaceous bedded massive
granular - very granular with many
fragments, sponge, corals, bivalves on top

Fossils - one broken bedded ls from another
piece of limestone at top = 7362

Chart - thin bedded slubby ls.

over



(15)

are siliceous granular ls
nearly black in fracture
~~limestone & bentonite~~ ~~and~~ ~~shale~~
in laboratory siliceous rocks form
transition to shale. Some
calcareous. The upper 5' of this
interval is mostly blocky, silty
rock with occasional ls. ls.

Strata dip on base of Wood
N 42° E 18° NW. Wood starts
0-14 steps of dip at 15°
yellow silty siliceous rock
at 14 crossed a one-1/2 foot
band of ls with siliceous inclusions
Fossils common.

736g

14-33 - Yellow siliceous rock breaking
pieces one or two inches thick,
much broken and tilted. Fossils few
at 5' come off at opening of hill
and where raw surface exposed
bed very hard & dense.

33-88 - Thin bedded yellow shale
or siltstone with scattered ls
concretions. At top is our fossil bed
in two layers, the lower 1-2'
separated by about 3' bone black
sh. The upper bed sandy and cherty
also with fossils.

A 30'

massive bed extending probably base
of section with shaly transition to top

(B)

N 23° E 11°NW on upper fossil bed.

Fossil beds take 2 steps at 11°

Fossil bed up at 11°

0-11 - siliceous yellow shale and some bluish siltstone with numerous light gray weathering ls concretions. The limestone black on fracture.

11-15 - same, but more black ls

15-20 bluish shale with large ls concretions, black, weather yellow gray. This is at foot of steep slope.

20-58 up steep slope to thick ss bed. Slope mostly covered but having washes of light blue gray shale from which weathered small round ball-like concretions. The ss is platy and thin bedded at least in the lower part. This is almost certainly the pinkish ss in King & Ross' sections. Fossil bed must be 220-250' below King's thick ss.

The slope above the ss to the base of the Apitan ls. is about the same thickness as that below the ss to the top of the last ls. The soft shale also has ls concretions with black

38
32
76
19

(1)

lenses.

The lower lens is only about 100 feet long whereas the upper one extends a good distance across the hill from gully to valley. On the east of hill it thins out. It is much less fossiliferous than the lower lens.

The upper layer shows no distinct bedding in places which may reflect some fluvage. This may also account for the lenticularity of the lower parts of the layer.

B-W 2 - last views of Limestone with distinct bedding.

Colors - up to 27 same as above
also views of mountain front from Davies' bump-gate.

B

April 3

Backing from X in stream
0-90 covered

at 90 about 30 paces in massive
limestone. Chertfall. This
is on flank of King's Hill.

At 300 paces stream choked
with boulders of almost, and
rock forms small gorge.
At 412 paces a falls in stream.
Clst. rock forms bed and banks
of stream.

At 490 bluff of Hockeyside
Cathedral mtn. Dips appear
to be to S or SE.

At 508 dolomite rock dipping
S. and clearly under the clust.
has ghosts of Franklin ls.
508-765 massive thick-bedded
dolomite. At 765 some deformation
of dolomite, breaking into small
pieces.

At 1100 paces come to road
and stream crossing. Saw
dolomite all the way. At stream
& road crossing a few boulders
but I saw no chert. in them
See notes of 1965.

(19)

Hess north gate fence extends up hill crossing hill 5601 just west of King fault.

Here 2 levels of bioherms in R.C. toward Waagenoc area but it is clearly Word #3 float.

At about A the Ryck Limestone ledge of the R.C. has dark gray, fine grained limestone. The bioherms lift you, leaving bedded (4"-more than a foot). Off this there are about 6' below this are irregularly bedded black fine ls with some black chert. Remnant of the Bullion Peak section. Of this there must be 5 more feet below this some 12 of bioherms. The beds like those at Bullion Peak are subdivided between bioherms.

The bottom of the R.C. is very irregular. The dark beds at the base of the middle bioherms often become finely granular and contain fine grains. I think these are the beds that produced the Permian at 726c further northeast on the hill.

The beds containing C. batilliformis are very thick here

(20)

often just a single thick layer 3 or 4 feet thick. This bed is separated from the overlying bed of dolomites by several feet of yellow shale. Above this bed of shale there are only yellow shales or thin occasional thick dolomites. The yellow shales commonly have thin lenses of limestone or dolomites. Some of the ls seems to have contorted bedding.

736v - West of 3 float
picked up a bed of dolomite
limestone between two
bedrock ridges just
west of fault, hill steel
Pecos Sh. L. 1960

736v + same bed from
Pecos Sh. limestone of Red
Canyon.

141666
2458
6411